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NOTES & COMMENTS

Drawing lessons from the COVID-19 pandemic: science and epistemic humility should go together

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Abstract During the COVID-19 pandemic, scientific experts advised governments for measures to be promptly taken; they also helped people to understand the situation. They carried out this role in the face of a worldwide emergency, when scientific understanding was still underway. Public scientific disputes also arose, creating confusion among people. This article highlights the importance of experts' epistemic stance under these circumstances. It suggests they should embrace the intellectual virtue of epistemic humility, regulating their epistemic behavior and communication accordingly. In so doing, they would also favour the functioning of the broad network of knowledge-based experts, which is required to properly address all the aspects of the global pandemic.

Keywords COVID-19 pandemic · Disagreement among experts · Epistemic humility · Knowledge production

1 The role of scientific experts during the COVID-19 pandemic[1]

Science has played the role of epistemic authority during the COVID-19 pandemic: the biophysical characteristics of the virus have been determined by means of science; scientists tried to predict the dynamics of the outbreak and suggested the proper measures to contain it. People's understanding has also been mediated by public communications

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or debates in the media, with the participation of scientists. Scientific experts have been called upon to act as advisors in public venues, having to do this amid a worldwide emergency, while the process of scientific understanding was (and still is) in progress.

Under these circumstances, the epistemic stance of such experts is even more relevant. The vast sphere of influence involved, imposes duties on their behavior (Levy & Savulescu, 2020). Specifically, experts should recognize the uncertainty that might accompany their claims, adjusting their epistemic conduct and communication accordingly. They should therefore embrace epistemic humility.

2 Epistemic humility

In my account of the intellectual virtue of epistemic humility, two related aspects both matter, as Dalmiya (2016) and Kidd (2017) also suggested. The first aspect is a disposition to accurately evaluate one's own epistemic condition, recognizing both its strengths and weaknesses. Broadly speaking, it is about being aware of the intrinsic limitations of human cognitive capacity, although their reasons can be explained in different ways. At a deeper level, it might be assumed that the mind cannot grasp things in themselves, or that knowledge, including scientific knowledge, is always conditional.

At any rate, the focus here is on the experts' knowledge in the face of the COVID-19 pandemic. In this case, their knowledge gap depends on contingent reasons, as scientists have dealt with a rather unknown phenomenon on which they have been promptly called to give advice. It might also depend on more structural reasons, due to the fragmentation and overspecialization of expertise: experts in just one field of study, in fact, are able to autonomously gain only a limited understanding of the overall situation.

The second aspect of epistemic humility corresponds, following Kidd (2017), to the ability to translate the recognition of the aforementioned partiality into a proper way of regulating one's epistemic behavior. Here I specifically frame it as a disposition to behave virtuously when interacting with other epistemic agents. With regard to the global pandemic, it involves for example how to engage in debates with peers, especially when such debates turn into public quarrels.

3 Disagreement among experts

The Covid-19 pandemic has widely spotlighted disagreements among scientific experts. Even issues like the efficacy of face mask or the adoption of lockdowns have been an object of debate, something reflected in the different strategies enacted by the countries. For instance, in the first wave of the pandemic, Sweden did not impose a lockdown and discouraged people from wearing masks, fostering instead voluntary social distancing. South Korea and Taiwan also avoided severe lockdowns, choosing to implement extensive testing and surveillance.

Now, experts' disagreement might depend on the fact that they have dealt with a novel, highly complex problem. New data sets have been continuously collected and analyzed, circulating even before being peer-reviewed through pre-print services.

The process of scientific understanding takes time, thus it is not unusual to find disagreement in the earlier phases, even with the same data interpreted differently.

I also believe that, as argued by John Stuart Mill ([1859] 1999), disagreement might be epistemically good. Healthy epistemic communities are actually typified by a plurality of conflicting perspectives. Each perspective, due for instance to disciplinary assumptions and value commitments, is blind to something. However, taken together they might mutually compensate for their limitations. They might also suggest different solutions to the same problem. An example is that of the different national strategies to control the pandemic, which showed different ways to be successful: some relying on tracing, as in Taiwan, others based on immediate nationwide lockdown, as in New Zealand.

On the other hand, the arena of the discussions has not only been a scholar environment like scientific journals or conferences. Rather, these discussions have taken place in the media. Some debates boiled over and polarized along conflicting statements by medical and healthcare specialists (e.g. Nichols, 2020). Groups of eminent experts wrote open letters or used the opinion pages of newspapers to suggest opposing approaches on how to tackle the pandemic. For instance, this occurred in the UK and in Sweden, where cultural norms do not encourage open disagreement. In Italy, I repeatedly witnessed heated disputes between medical experts on television, where each adamantly claimed to be right and the other wrong, while making use of abrasive communication.

This situation has caused confusion among people, especially in Europe. Some believe that the price to be paid for these disputes will be a drop of public trust in scientists, as a few surveys seem to show (e.g. Eichengreen et al., 2021). Others, like the Editor-in-Chief of *Science* (Thorp, 2021) are more optimistic. They argue in favour of open debates, wherever they may happen, believing that they can foster people's interest in scientific research and allow them to observe its making in real time.

Now, I have no doubt that, in accordance with Mill's view, it is beneficial to have open debates in pursuit of scientific knowledge. However, I also believe that the way to conduct the debates should be calibrated with the situation, which today is a world-wide crisis. It is not only a matter of running the debates respectfully, being frank and direct but never degrading into personal attacks. *Responsible* debates should also put disagreement in proper context, highlighting that scientists still have a common body of understanding and share a common evidential basis (Birney, 2021). Even more importantly, uncertainty and many forms of *unknown* should be featured as integral to the pandemic situation. That is precisely what makes experts epistemically humble, i.e. being honest about their own epistemic resources and reflecting it in the way they express themselves. Not only would this make the debates more productive; it would also help people trust the scientific process, leading them to better understand how science operates—as a collective and self-correcting epistemic enterprise that continues to ask questions to address the unknown.

4 Virtuous experts and the relational attitude

This discussion on epistemic humility creates the basis for delineating the figure of the virtuous expert, as one who is able to integrate competence and proper epistemic stance. Angner (2020) argued that such a figure has the *cognitive* skill of being proficient in a particular field and the *metacognitive* skill of being able to evaluate such expertise, understanding its validity range. Owing to this double qualification, virtuous experts are prone to express their ideas with the proper degree of confidence, i.e. as justified by their knowing. They then avoid the trap of overconfidence which, in the case of the pandemic, would correspond to behaving as though uncertainty were not part of the situation or without considering the boundaries of one's field of expertise.

I could add that virtuous experts also consciously act as *relational* epistemic agents, i.e. not failing to recall that knowledge production depends, in most cases, on their reciprocal epistemic dependency. For instance, a growing understanding of the viral phenomenon could not have happened without the assessment of hypotheses by different scientific groups or data sharing. Furthermore, to assess the implications of the measures taken to contain the pandemic, there is the need for multiple disciplinary perspectives, far beyond natural and medical sciences (see also Mormina et al., 2020).

The latter requirement is also a matter of social justice. Not accurately considering the social, psychological and economic repercussions of actions like the lockdowns risks exposing people to increased danger, especially the most vulnerable ones (e.g. poor, marginalized, children, elderly).

Finally, an extensive epistemic community is also indispensable when investigating the deeper reasons that generated the COVID-19 crisis: not only its socio-economic and political determinants (Wallace et al., 2015), but also the worldview assumptions underpinning them, such as the deep-seated dualism that separates man from nature (Mazzocchi, 2021). It is worth noting that the functioning of this broad epistemic community requires not merely institutional mechanisms to foster interchange; it also requires that their members show proper epistemic conduct.

Looking beyond the pandemic emergency, one should think about what kind of future we want to build. Will everything return to *normal* or will that idea of normality be questioned as the substratum from which the crisis arose? What role will biopolitics and health surveillance play in this future? The challenges raised by the COVID-19 pandemic could not be addressed relying on a restricted range of expertise. And if this is the case, an additional challenge arises, namely, how multiple holders of expertise should interact together. Here philosophical investigation matters, as it might specify what epistemic stances are entitled to promote fruitful interaction. I illustrated the importance for scientists and experts to embrace the right dose of epistemic humility. No doubt, in so doing they would contribute to making the strategies to tackle the pandemic or other global crises more equitable and farsighted.

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